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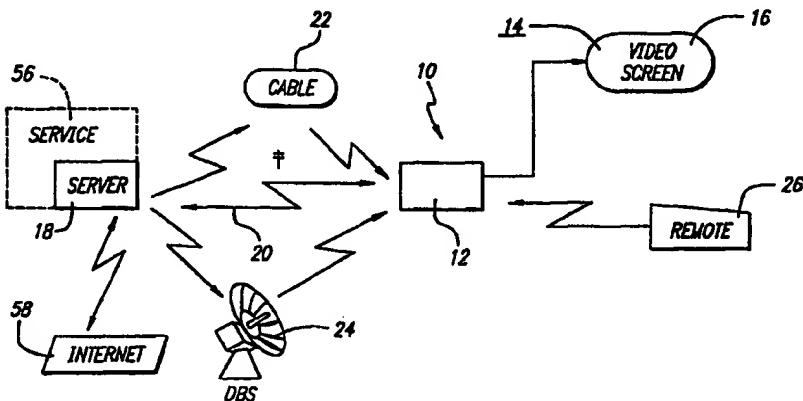
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(54) Title: INTERACTIVE MENU



(57) Abstract

A client-server system includes an interactive ticker which presents a live content data broadcast which changes dynamically over time. The live content may include text, graphics, audio, video, and other multimedia information. The interactive ticker is broadcast independent of the video broadcast, presenting to the user interactively selectable live content along with the television program content. The system provides a dynamic interface organized into categories of information of interest to users, in a coordinated and coherent manner. The user can efficiently select customized and personalized live content in a category or categories of interest to the user, integrated along with the television program. The system can provide a link to a web page at an internet site to present internet content related to the live content category of interest. An intelligent agent can passively monitor selected menu categories for a user to explore based on the user's past patterns of usage of the client.

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## INTERACTIVE MENU

BACKGROUND OF THE INVENTION

5       The present invention relates generally to a client and server system for presenting broadcast data and television content and, more particularly, to a dynamic live content interface presented along with television content.

10      The internet is a collection of interconnecting networks. Interest in the internet has been increasing recently, especially in regard to what has become known 10 as the World Wide Web, which allows information on the internet to be presented through a graphical interface.

15      The World Wide Web is a major client-server system, with millions of users, and is essentially a vast collection of interconnected documents. The documents reside in web pages which may be requested from a server using a client 15 browser. Although the use of animation, as well as audio and video, is becoming more common, the majority of web sites generally only present static graphical images. A web page having a large number of graphical images can take a long time to access. Audio and video files are typically very large, and take even longer to access.

20      Along with the increasing interest in the internet and the World Wide Web, appliances or set-top boxes similar to cable TV boxes have been developed in an attempt to allow access to the internet through the traditional television set. However, such attempts suffer from delays in accessing the graphics, audio and video 25 of the web. Mass-market consumers are typically accustomed to having information broadcast or delivered to them with minimal effort or delay.

25      The practice or technology of having information brought to a client user by an agent is sometimes referred to as push. However, push technology broadcasts static types of data, and such broadcasts are not presented along with television programming and are not interactive with the viewer.

30      Information has been presented to the television viewer in a window displayed along with television programming, such as a sports scoreboard window presented along with a sports program on a cable television network such as ESPN.

However, the window is only broadcast along with the television program as a single non-interactive broadcast package, and the information presented is essentially only static information such as text.

Hence, there has been a need existing for a system which is capable of 5 broadcasting data dynamically in a selectable manner, so as to provide text, images, sound, video and other multimedia information along with traditional television programming interactively in categories of interest to the user. The present invention fulfills these needs.

10

#### SUMMARY OF THE INVENTION

Briefly, and in general terms, the present invention provides an interactive ticker system for presenting a dynamic interface along with television programming.

15       The system displays an interactive ticker, including a dynamic live content data broadcast, along with television programming. The system comprises a client including a display. The system further comprises means for selecting between channels separately representing individual television content and for selecting the interactive ticker. When an individual television content channel is 20 selected, the client presents the content associate with the selected channel on the display. When the interactive ticker is selected, the client displays the interactive ticker along with the selected television content channel on the display. The server, which includes the interactive ticker, further includes means for establishing a data connection with the client and broadcasting data along the data connection to the 25 client, means for enabling data comprising live content to be broadcast through the interactive ticker, and means for presenting the interactive ticker on the display.

One aspect of the present invention is that the system presents to the user a live content data broadcast, which changes dynamically over time. The live content may include text, graphics, audio, video, and other multimedia information.

30       Another aspect of the present invention is that the interactive ticker is broadcast independent of the video broadcast, enabling presentation to the user of interactively selectable live content along with the television program content.

Still another aspect of the present invention is that the system provides a dynamic interface organized into selectable categories of information, in a coordinated and coherent manner.

Another aspect of the present invention is that the system provides a user interface for efficiently selecting customized and personalized live content in a category or categories of interest to the user, integrated along with television programming.

A further aspect of the present invention is that the system presents a link to internet content related to the category of interest selected by the user.

Yet another aspect of the present invention is that the system can use an intelligent agent to passively monitor and present categories of interest selected by the user based on past patterns of usage of the interactive ticker by the user.

Other features and advantages of the invention will become apparent from the following detailed description taken in conjunction with the accompanying drawings, which illustrate, by way of example, the features of the invention.

#### BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a block diagram illustrating a client-server system in accordance with the present invention;

FIG. 2 is an elevational view of a display with a television program presented therein, and a remote control device, in accordance with the present invention;

FIG. 3 is an elevational view of the display with the television program and a control panel presented therein in accordance with the present invention;

FIG. 4 is an elevational view of the display with the television program, control panel, and a menu bar presented therein in accordance with the present invention;

FIG. 5 is an elevational view of the display with the television program and a ticker panel including a dynamic live content ticker window and internet site link presented therein in accordance with the present invention;

FIG. 6 is an elevational view of the display with the television program and multiple dynamic live content ticker windows presented therein, in accordance with the present invention; and

FIG. 7 is a flow chart illustrating the interactive ticker in accordance  
5 with the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

Referring now to the drawings, and in particular to FIGURE 1, there is shown a client-server system for presenting an interactive ticker which dynamically broadcasts data therethrough, including live content which changes dynamically over time, integrated along with television programming presented on a display such as a television screen. The live content presented can be selected by the user in a category or categories related to or different from the subject matter of the television programming, and can include text, graphics, audio, and video.

Client 10 includes a set-top box 12 which is connected to or integrated within a television appliance 14. Set-top box 12 provides connections to video and computer data sources which are processed and displayed on a screen 16 of television appliance 14. Television appliance 14 includes channels separately representing individual television content. Screen 16 can include a cathode ray tube ("CRT"), liquid crystal display("LCD"), or other device capable of presenting a video image.

Client 10 is connected to a server 18 through a data connection such as a telephone modem 20, such that data may be broadcast from server 18 to client 10 along the data connection. The video connections to client 10 may include cable 22 and digital broadcasting satellite ("DBS") 24 connections. The computer data connections to client 10 may include telephone modems and ISDN connections, as well as digital satellite data services, and cable modems over the video connections to client 10. Client 10 may utilize several different types of data connections simultaneously.

Client 10 preferably further includes a remote control device 26, to allow the user convenient control of both the interactive ticker and television functions through set-top box 12. As shown in FIG. 2, remote control device 26 preferably includes numeric keys 28, channel up (forward) and channel down (back) buttons 30 for selecting channels, and directional controls 32 for controlling movement on the television screen such as a cursor or menu selector. Remote control device 26 may further include a menu key 34, for enabling access to a control panel 36 and the interactive ticker. Client 10 may further include a pointing device

(not shown) which can be manipulated on screen 16 through directional controls 32 in remote control device 26 for selecting control, menu, and interactive ticker functions.

Control panel 36, as illustrated in FIG. 3, may be presented on client display screen 16 and accessed by the user through remote control device 26. Control 5 panel 36 includes customized control buttons 38 selectable by the user. Each control button 38 is dedicated to an individual control function and enables access thereto, including an interactive ticker function button 40, and may further include a multiple interactive ticker function button 42, and goto, favorites, mail, and setup function buttons. Control panel 36 may reside in client 10 or server 18. For example, control 10 panel 36 may reside in client 10, while the content for control buttons 38 are located on server 18.

In control panel 36, ticker button 40 enables access to menu bar 44, live content ticker window 46, ticker panel 48, and internet link button 50, for presentation of a selected ticker menu category on screen 16 in ticker window 46 in 15 the foreground, with television content displayed in the background. The multiple interactive ticker button 42 enables presentation of multiple selected ticker menu categories on screen 16 at the same time. FIG. 6 shows live contents in multiple ticker windows 46 each relating to a different category, all displayed on screen 16 at the same time, with television content continuing in the background. Multiple 20 tickers are accessible by selection of multiple ticker button 42 in control panel 36, and selection by the user of multiple category buttons 52 in a menu bar 44 accessed by multiple ticker button 42.

Server 18 is a computer which can establish a data connection with client 10, for accessing and broadcasting data along a data connection, for example 25 over a telephone line. Server 18 functions as access for client 10 to an interactive ticker 54 so that the user through client 10 may access dynamic live content. Server 18 may be part of an on-line service 56 for the user. The service provider may package the selectable category buttons 52 in ticker menu bar 44, and live content in each menu category, in a ticker window 46, which may be displayed in ticker panel 30 48 to respond to selection of a menu bar category button 52, as shown in FIGS. 4-5, to address the information needs and interests of a diverse consumer marketplace.

Interactive ticker 54 provides a framework in server 18 for broadcasting customized and personalized data therethrough to client 10, so as to be presented along with the selected television content channel on television appliance 14. When an individual channel on television 14 is selected by the user through remote control device 26, client 10 presents the content associated with the individual channel on display screen 16. When interactive ticker 54 is selected by the user through remote control device 26, interactive ticker 54 is displayed on display screen 16 along with the selected television channel content. Interactive ticker 54 overlies screen 16, so as to enable television content to continue in the background on screen 16. Interactive ticker 54 is accessed through selection of interactive ticker button 40 in control panel 36, and includes menu bar 44 which includes a plurality of selectable buttons 52 for categories of potential interest to users generally, such as for example "sports," "weather," and "shopping". A category such as "sports" would include live content in ticker window 46 related to sports. Similarly, other categories would each include live content related thereto. Panel 48 may also include an internet link button 50 to link to an internet site 58 related to the selected menu topic of interest.

Ticker panel 48 preferably presents live content in ticker window 46 therein as an active and dynamic window for the user on screen 16 along with television content. Interactive ticker 54 may be represented in control panel 36 as function control button 40, to be selected by the user in addition to traditional television programming channels selectable in remote control device 26.

While menu bar 44 and its associated ticker category button 52 may initially be predetermined by the service 56, they can be later adapted automatically by an intelligent agent in server 18 based on past selection habits of the user. Server 18 may monitor the user's selections, and based on these selections, an algorithm may be used to modify menu bar 44 responsive to such monitoring to present more frequently-selected categories to the user. An intelligent agent in server 18 may automatically filter menu categories based on user selections.

When a category is selected in menu bar 44, by activating the corresponding category button 52, live content, such as graphic images, animation, video, a sound file, or a combination thereof, associated with the selected category is displayed in ticker window 46 on screen 16. Such live content is accessed by server

18 through a data connection such as for example a telephone modem, an ISDN connection, a digital satellite data server, or a cable modem, and changes dynamically to reflect changes over time therein, presenting a dynamic interface to the user.

For example, as illustrated in FIGS. 4 and 5, category "weather" is  
5 selected and the associated live content is broadcast to and displayed in ticker window  
44, such as graphical, animated, or video images associated with the weather forecast  
for each day of the week. Link 58 to an internet site associated with the live content  
may be activated by selection thereof. To select another category, activating menu  
key 34 in remote control device 26 causes menu bar 44 to be displayed for selection  
10 of another category button 52, to thereby display live content associated with such  
other category. Television content, such as Cable News Network ("CNN")  
continues to be displayed in the background while interactive ticker 50 is displayed  
in the foreground. Live content may alternatively for example constitute a data feed  
of localized content, such as local election results, while television content may  
15 constitute a separate video feed of national content, such as national election results.

An on-screen pointer can be manipulated through directional controls  
32 in remote control device 26, to select a particular category in menu bar 44,  
whereupon ticker panel 48 is displayed, and live content is broadcast in ticker  
window 44 therein.

20 FIG. 7 is a flow chart illustrating the process for implementing the  
interactive ticker for broadcasting data including live content to the user. The user  
first activates the menu key on the remote control device, and the server activates the  
control panel for display in the client, and activates the ticker control button to  
activate the interactive ticker in the client. The menu bar is then displayed on the  
25 television screen, displaying the menu category buttons therein.

If the user selects a menu category button, the live content window  
associated with that category is displayed on the screen in the ticker panel, in the  
foreground with television content displayed in the background. If the user then  
selects the internet link button in the ticker panel, internet content related to the  
30 selected menu category is displayed.

The interactive ticker is a dynamic interface, from which the user can  
readily access customized and personalized live content displayed in combination with

television programming. The live content window of the interface presents broadcasts data associated with a user-selected category or categories of interest, in the form of text, graphic images, video, animation, audio, sound files, or a combination thereof, which change dynamically over time. The user may also select a link to an  
5 associated internet site for further associated data.

- An intelligent agent on the server can monitor the menu categories selected by the user over time. The intelligent agent can then identify menu categories of particular interest to the user based on past selections in order to determine the user's preferences for the selected categories presented in the menu bar.  
10 The category preferences can be determined after being reviewed by the service running the server, or through an algorithm, used to modify the categories based on user preferences.

From the foregoing it will be appreciated that the system of the present invention provides advantages in presenting a dynamic interface for live content  
15 associated with user-selectable categories of interest. While particular forms of the invention have been illustrated and described, it will be apparent that various modifications can be made without departing from the spirit and scope of the invention. Accordingly, the invention is not to be limited, except as by the following claims.

IN THE CLAIMS:

1. A system for selectively displaying an interactive ticker and television programming on a display, the system comprising:
  - a client, including a display, and channels separately representing individual television content;
  - 5 a server, including means for establishing a data connection with the client and broadcasting data along the data connection to the client, an interactive ticker including means for enabling data to be broadcast therethrough, which broadcast data comprises live content which changes dynamically over time, and means for presenting the interactive ticker on the display; and
  - 10 means for selecting between the television content channels and for selecting the interactive ticker, wherein when an individual television content channel is selected the client presents the content associated with the selected channel on the display, and when the interactive ticker is selected the client displays the interactive ticker along with the selected television content channel on the display.
2. The system of claim 1, wherein the interactive ticker live content includes text.
3. The system of claim 1, wherein the interactive ticker live content includes graphics.
4. The system of claim 1, wherein the interactive ticker live content includes audio.
5. The system of claim 1, wherein the interactive ticker live content includes video.
6. The system of claim 1, wherein the interactive ticker further includes a menu bar including selectable ticker category buttons, and means for presenting the menu bar on the display.

7. The system of claim 1, wherein the display includes a screen, and the interactive ticker overlies the screen, so as to enable television content to continue in the background on the display.

8. The system of claim 1, wherein the selecting means comprise a remote control device which includes means for selecting and activating the interactive ticker.

9. The system of claim 1, wherein the server further includes a control panel, and means for presenting the control panel on the display, and the control panel includes a customized control button dedicated to an individual control function and selectable by the selecting means, wherein the customized control  
5 function comprises an interactive ticker function.

10. The system of claim 1, wherein the server further includes means for monitoring interactive ticker selections by the user, to determine selections preferred by the user.

11. The system of claim 1, wherein the client includes a pointing device, and the selecting means further include means for enabling manipulation of the pointing device on the display for selecting functions in the interactive ticker.

12. The system of claim 1, wherein the interactive ticker comprises means for providing a dynamic interface to the user.

13. The system of claim 1, further comprising a service interconnected with the server, for providing the interactive ticker.

14. The system of claim 1, wherein the client includes a set top-box, connected to the display, for providing connections to video and computer data services to be presented on the display.

15. The system of claim 1, wherein the display comprises a television screen.

16. The system of claim 1, wherein the data connection enabling means comprise a telephone modem.

17. The system of claim 1, wherein the data connection enabling means comprise an ISDN connection.

18. The system of claim 1, wherein the data connection enabling means comprise a digital satellite data service.

19. The system of claim 1, wherein the data connection enabling means comprise a cable modem.

20. The system of claim 1, further comprising means for establishing a video connection with the client and broadcasting video along the video connection to the client.

21. The system of claim 1, wherein the live content is different from the television content.

22. The system of claim 1, wherein the live content is not related to the television content.

23. The system of claim 1, wherein the interactive ticker further includes a ticker window, means for presenting the ticker window on the display upon selection of a ticker menu category, and means for presenting live content related to the selected ticker category in the ticker window on the display.

24. The system of claim 1, wherein the server further includes an intelligent agent for automatically filtering menu categories based on user selections.

25. The system of claim 6, further comprising means for modifying the menu categories present in the menu bar by monitoring the user's selections of categories to determine the user's preferences for the selected categories in the menu bar.

26. The system of claim 8, wherein the client includes a pointing device, and the remote control device further include means for enabling manipulation of the pointing device on the display for selecting functions in the interactive ticker.

27. The system of claim 8, wherein the remote control device includes numeric keys for selecting channels.

28. The system of claim 8, wherein the remote control device includes directional controls for controlling movement of selection means on the display.

29. The system of claim 8, wherein the remote control device includes a button for activating a control panel on the display.

30. The system of claim 9, wherein the selecting means comprise a remote control device which includes means for selecting and activating the control panel and the interactive ticker control button.

31. The system of claim 9, wherein the control panel further includes a customized control button dedicated to an individual control function comprising a multiple interactive ticker function, which comprises presenting data broadcast live content from a plurality of selectable ticker menu categories on the display at the same time.  
5

32. The system of claim 9, wherein the control panel further includes a customized control button dedicated to an individual control function comprising a goto function.

33. The system of claim 9, wherein the control panel further includes a customized control button dedicated to an individual control function comprising a favorites function.

34. The system of claim 9, wherein the control panel further includes a customized control button dedicated to an individual control function comprising a mall function.

35. The system of claim 9, wherein the control panel further includes a customized control button dedicated to an individual control function comprising a setup function.

36. The system of claim 10, wherein the monitoring means are further adapted to modify the interactive ticker selections responsive to monitoring thereof.

37. The system of claim 20, wherein the video connection enabling means comprise a cable service.

38. The system of claim 20, wherein the video connection enabling means comprise a digital satellite broadcasting service.

39. The system of claim 23, wherein the interactive ticker further comprises a ticker panel which includes the ticker window therein.

40. The system of claim 26, wherein the pointing device manipulation enabling means include directional controls for controlling movement of the pointing device on the display.

41. The system of claim 39, wherein the ticker panel further includes a customized control button dedicated to an individual control function and selectable by the selecting means, wherein the customized control function comprises a link to individual internet content.

42. A method of selectively displaying an interactive ticker and television programming on a display, the method comprising the steps of:

establishing a connection between a client and a server, in a system for selectively displaying an interactive ticker and television programming on a display, which comprises a client, including a display, and channels separately representing individual television content, a server, including means for establishing a data connection with the client and broadcasting data along the data connection to the client, an interactive ticker including means for enabling data to be broadcast therethrough, which broadcast data comprises live content, and means for presenting the interactive ticker on the display, and means for selecting between the television content channels, and for selecting the interactive ticker, wherein when an individual television content channel is selected the client presents the content associated with the selected channel on the display and when the interactive ticker is selected the client displays the interactive ticker along with the selected television content channel

10 on the display between a client, which includes a display and channels separately representing individual television content;

selecting between the television content channels in the selecting means, wherein when an individual television content channel is selected the client presents the content associated with the selected channel on the display; and

20 selecting the interactive ticker in the selecting means such that the interactive ticker is presented on the display along with the selected television content channel.

43. The method of claim 42, wherein the interactive ticker further includes a menu bar including selectable ticker category buttons, and means for presenting the menu bar on the display, and the step of selecting the interactive ticker includes selecting a ticker category from the menu bar.

44. The method of claim 42 wherein the display includes a screen, and the step of selecting the interactive ticker includes selecting the interactive ticker so as to overlie the screen such that the selected television content continues in the background on the screen.

45. The method of claim 42, wherein the selecting means comprise a remote control device which includes a button for selecting and activating the interactive ticker, and the step of selecting the interactive ticker includes comprises activating the remote control interactive ticker button.

46. The method of claim 42, wherein the server further includes a control panel, and means for presenting the control panel on the display, and the control panel includes a customized control button dedicated to an individual control function and selectable by the selecting means, wherein the customized control  
5 function further comprises an interactive ticker function, and the step of selecting the interactive ticker comprises selecting the interactive ticker control panel button.

47. The method of claim 42, wherein the server further includes means for monitoring interactive ticker selections by the user, to determine selections preferred by the user, further comprising the step of activating the monitoring means to monitor interactive ticker selections.

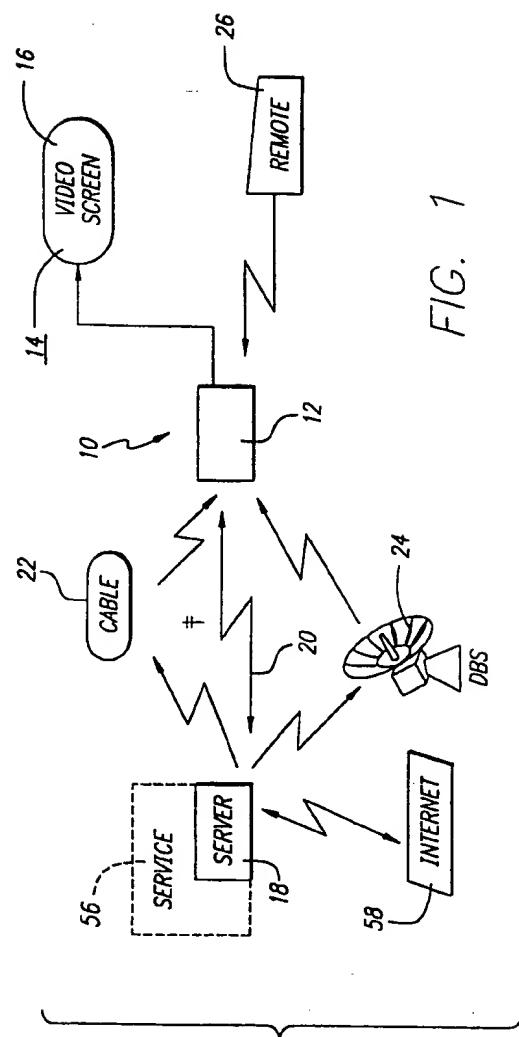
48. The method of claim 42, wherein the client includes a pointing device, and the selecting means further include means for enabling manipulation of the pointing device on the display for selecting in the interactive ticker, further comprising the step of manipulating the manipulation enabling means to manipulate  
5 the pointing device for selecting in the interactive ticker.

49. The method of claim 43, wherein the server includes a ticker window, means for presenting the ticker window on the display upon selection of a ticker menu category, and means for presenting live content related to the selected ticker category in the ticker window on the display, further comprising the step of

selecting the ticker menu category so as to present live content in the ticker window on the display.

50. The method of claim 43, wherein the server further includes an intelligent agent for automatically filtering menu categories based on user selections, further comprising the step of automatically filtering menu categories based on user selections.

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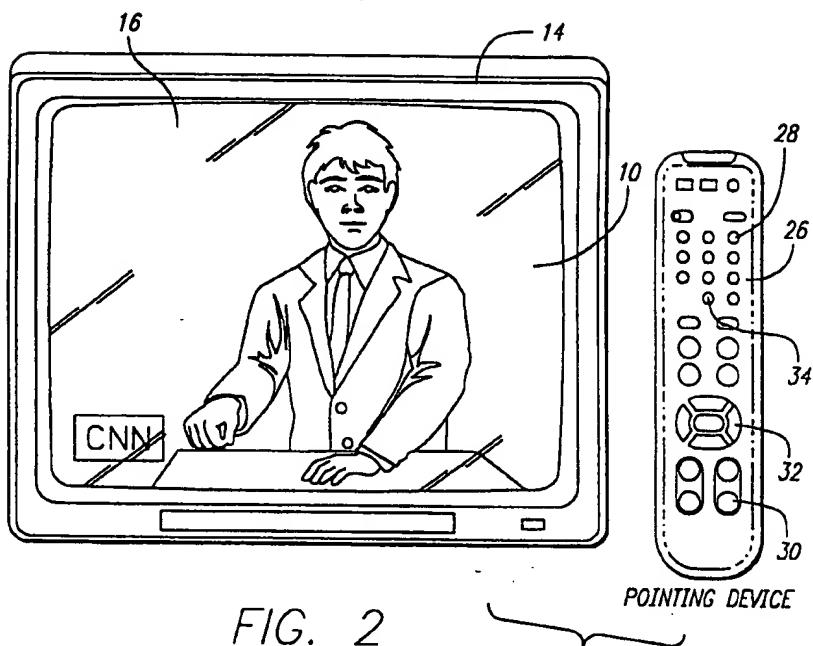
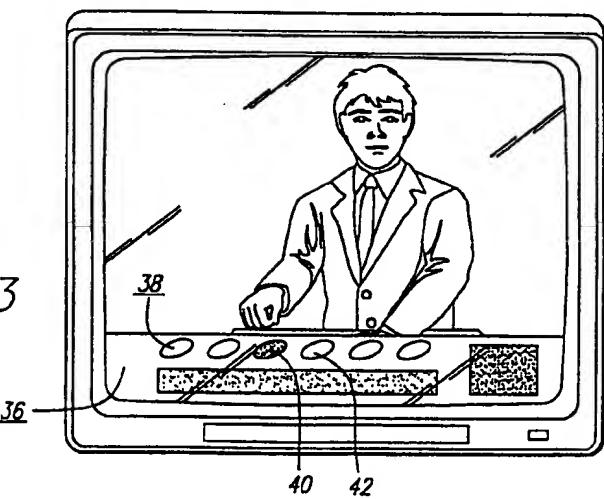


FIG. 3



SUBSTITUTE SHEET (RULE 26)

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FIG. 4

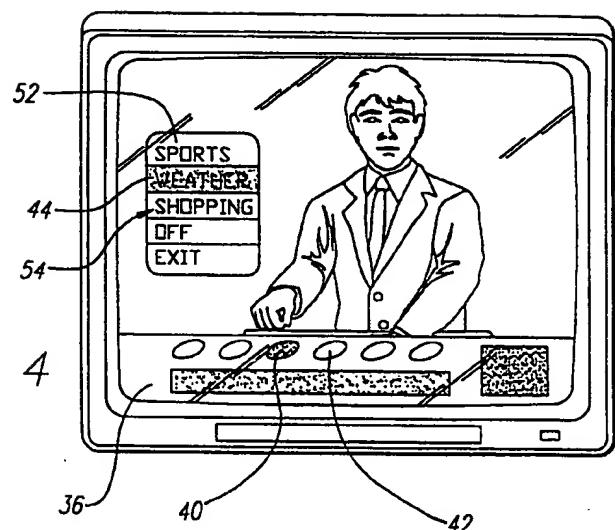
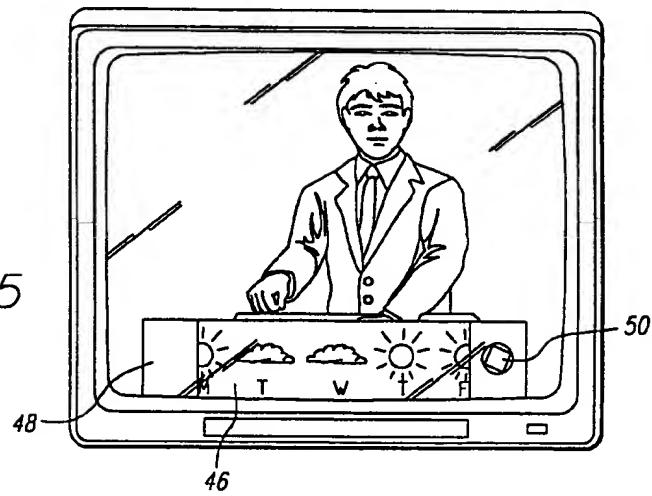


FIG. 5



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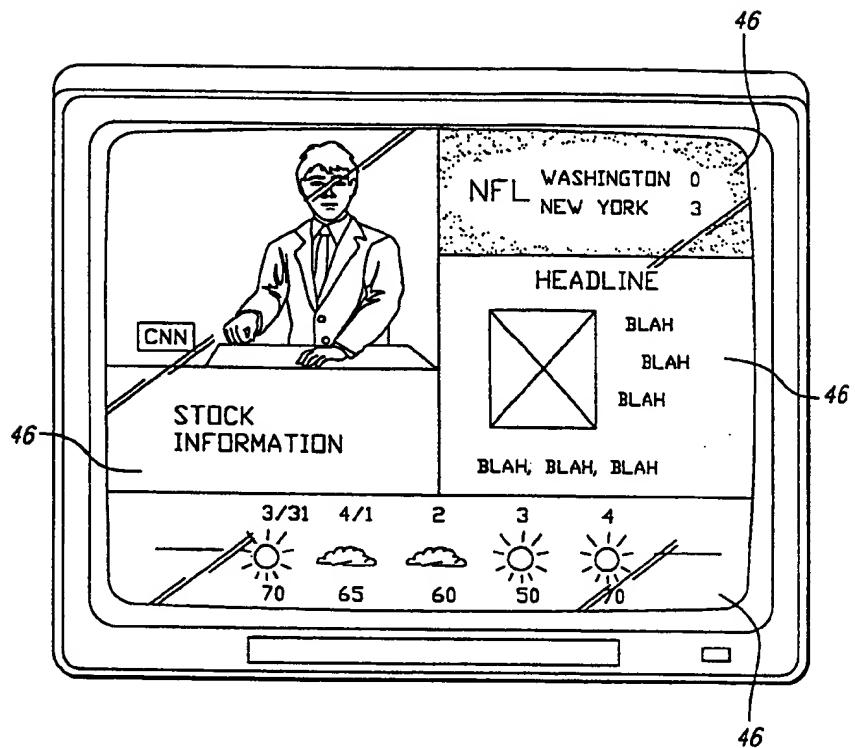


FIG. 6

SUBSTITUTE SHEET (RULE 26)

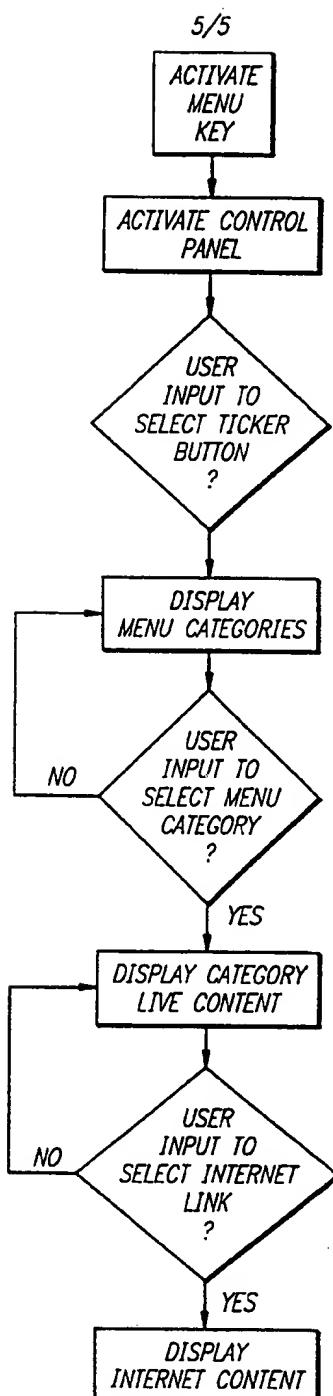


FIG. 7

**INTERNATIONAL SEARCH REPORT**

Intern. Appl. No.
PCT/US 98/16243

**A. CLASSIFICATION OF SUBJECT MATTER**

IPC 6 H04N7/173

According to International Patent Classification(IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)  
IPC 6 H04N

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	MARTINI S: "POINTING THE WAY TO INTERACTIVE TELEVISION" SIEMENS COMPONENTS, vol. 31, no. 1, 1 January 1996, pages 14-17, XP000591200	1-3, 6-13, 15-23, 26-28, 30,37, 38,40, 42-46, 48,49 4,5,14, 24,25, 29, 31-36, 39,41, 47,50
A	see page 15 - page 17	---- -/-

Further documents are listed in the continuation of box C.

Patent family members are listed in annex.

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Date of the actual compilation of the international search	Date of mailing of the international search report
8 October 1998	16/10/1998
Name and mailing address of the ISA European Patent Office, P.O. 5818 Patentstaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl Fax: (+31-70) 340-3016	Authorized officer  Beaudoin, O

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page 1 of 2

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PCT/US 98/16243

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X	EP 0 746 152 A (IBM) 4 December 1996  see page 26, line 13 - line 39; figures 13-18 ---	1-3, 6-13, 16-23, 26-28, 30,37, 38,40, 42-46, 48,49
A	WO 94 13107 A (DISCOVERY COMMUNICAT INC) 9 June 1994 see page 52, line 9 - page 57, line 16 see page 74, line 1 - page 78, line 13 ---	1-50
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